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(71) Applicant(s)
David Choon Sen Lam
11 Wentworth Close, Finchley, LONDON, N3,
United Kingdom

(72) Inventor(s)
David Choon Sen Lam

(74) Agent and/or Address for Service
Laurence Shaw & Associates
5th Floor, Metropolitan House, 1 Hagley Road,
Edgbaston, BIRMINGHAM, B16 8TG, United Kingdom

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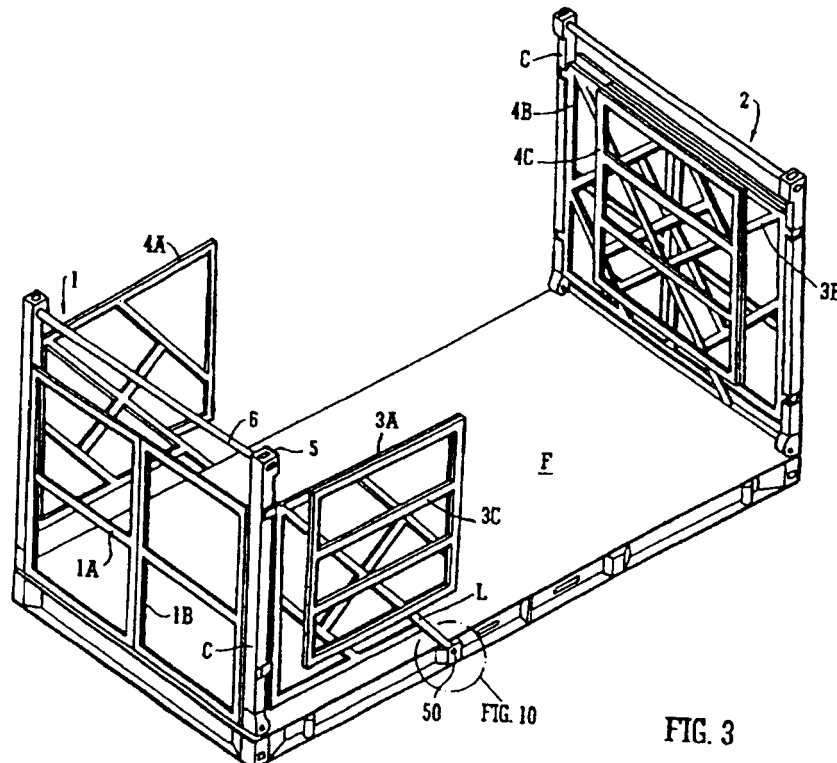
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(56) Documents Cited
GB 2259495 A GB 2101963 A WO 95/20525 A1
US 4858779 A US 4177907 A

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(54) Abstract Title
Collapsible transport platform

(57) A collapsible transport platform is dimensioned so that a plurality of them are receivable side by side on edge within a standard ISO shipping container (Fig. 7). The platform P comprises a floor F with four corner column members C, a pair of short side walls 1, 2 and a pair of long side walls 3, 4. The column members are hinged to the base of the platform and the walls and doors collapse so they overlie the base in a substantially flat configuration (Fig. 6). Each short side wall is preferably in the form of a pair of doors 1A, 1B hinged to the column members. Each long side wall is preferably formed with three sections 3A, 3B, 3C, the outer sections 3A, 3B being hinged to the column members, the middle section 3C being hinged to one of the other sections. The platform is provided with rollers on the base and lifting hooks 5 on the top of each column member.



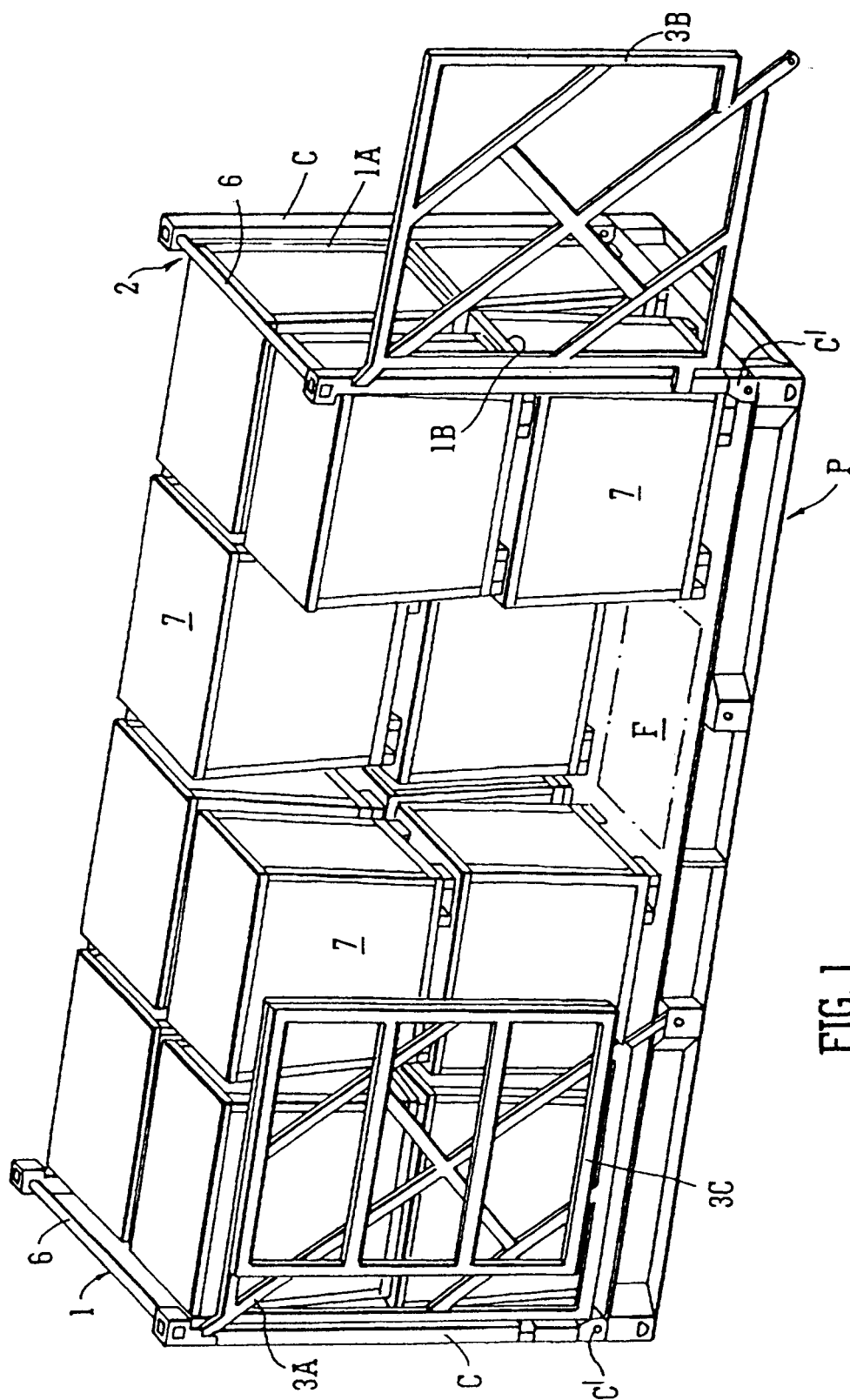


FIG. 1

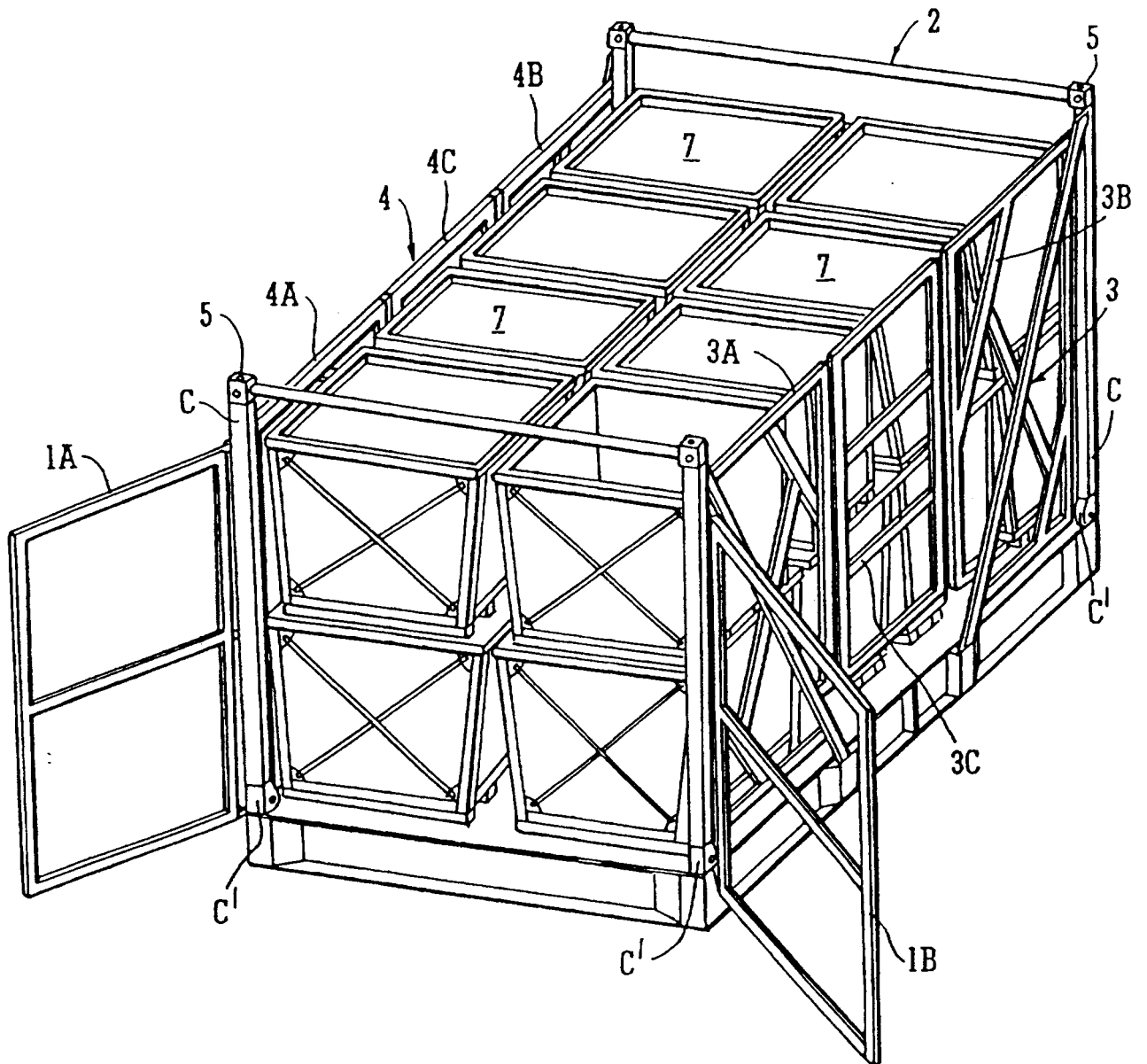
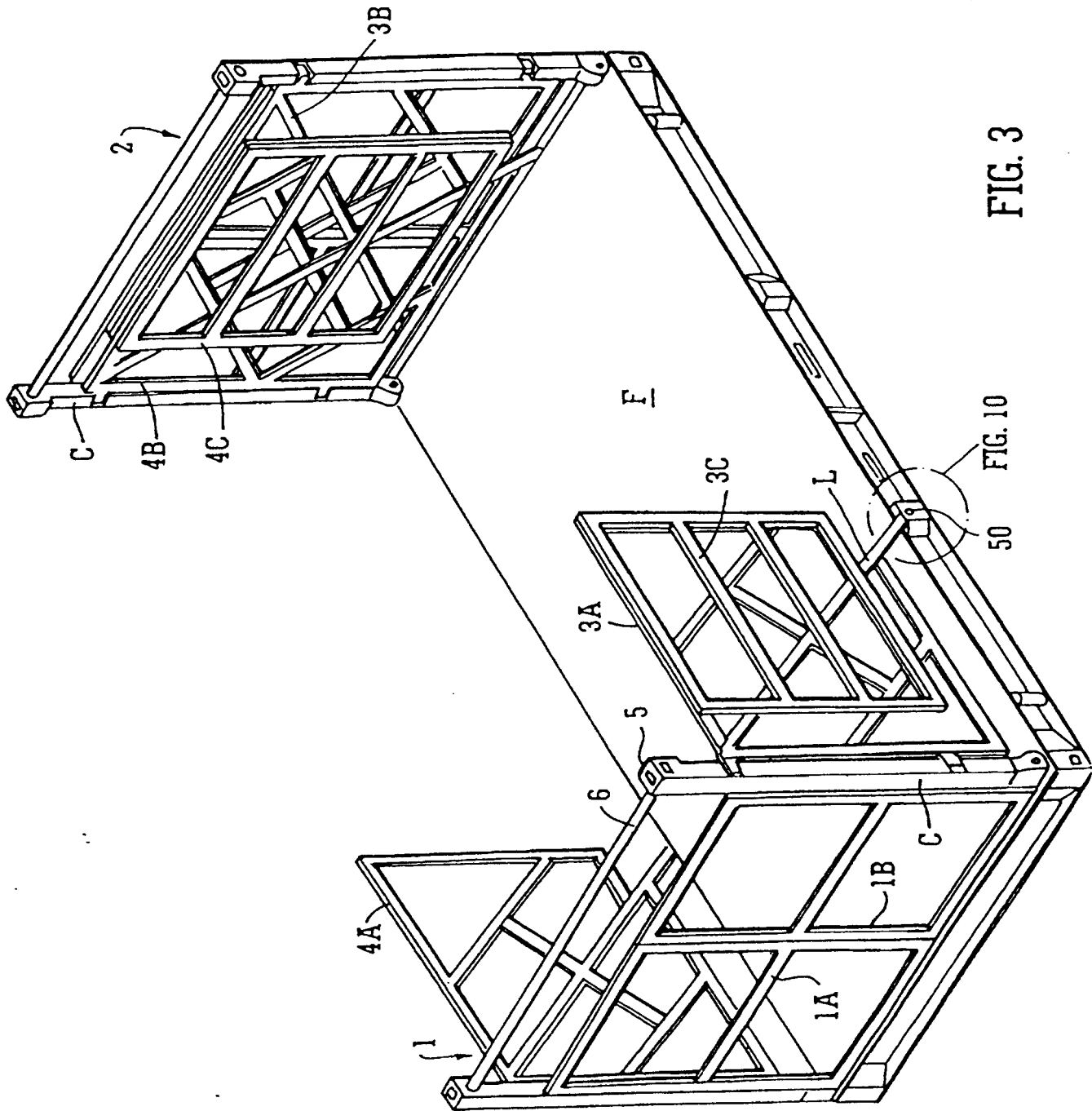


FIG. 2



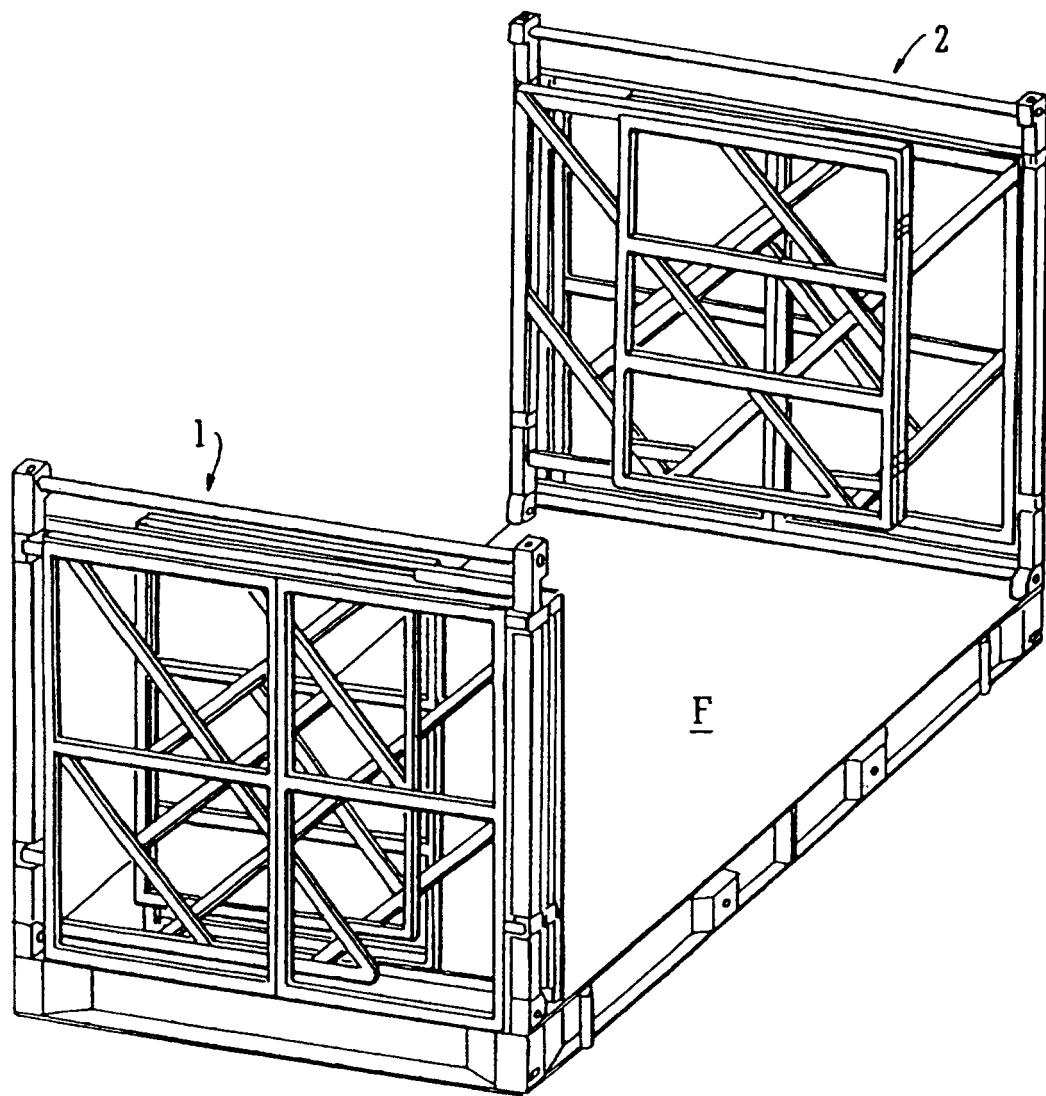


FIG. 4

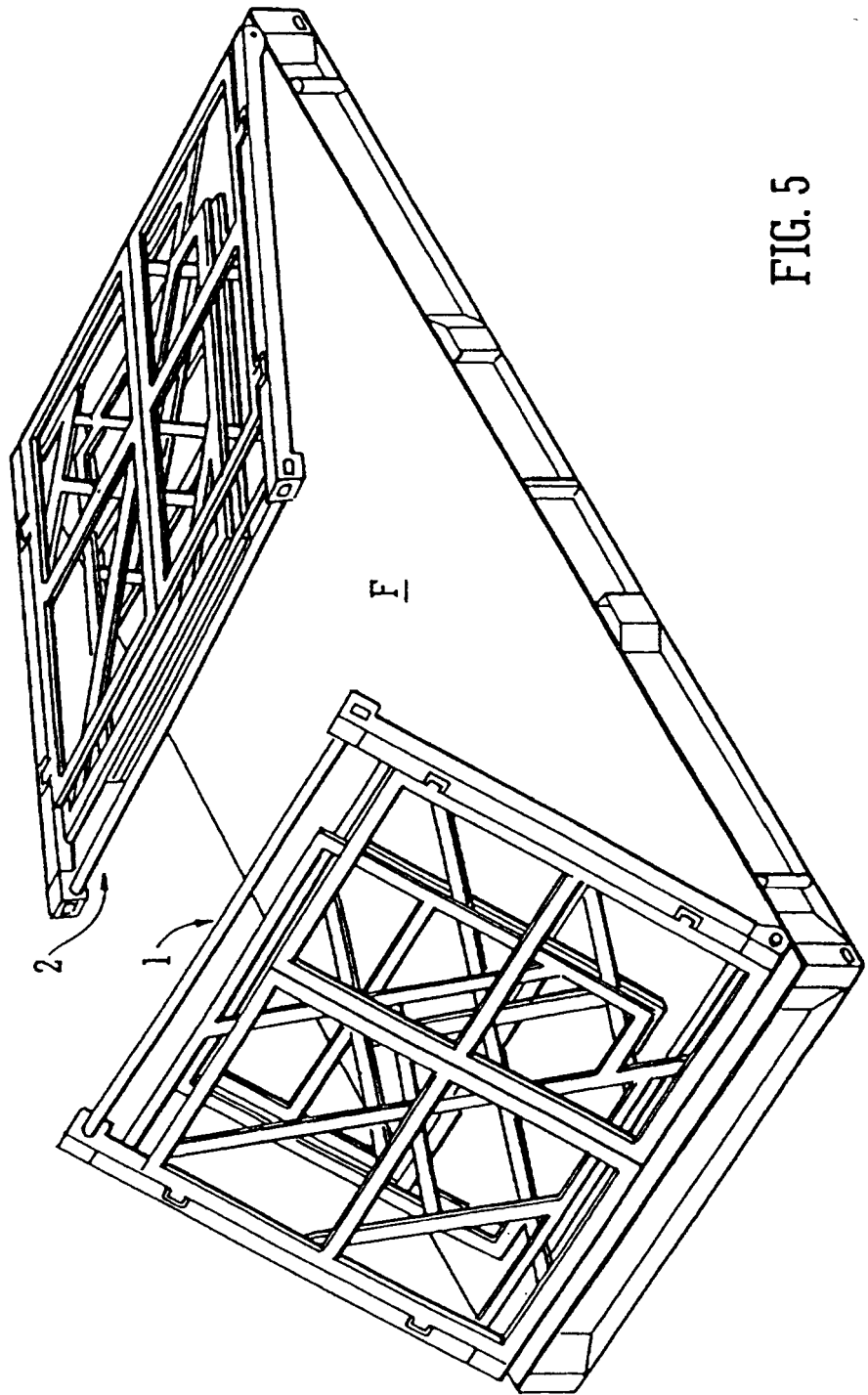


FIG. 5

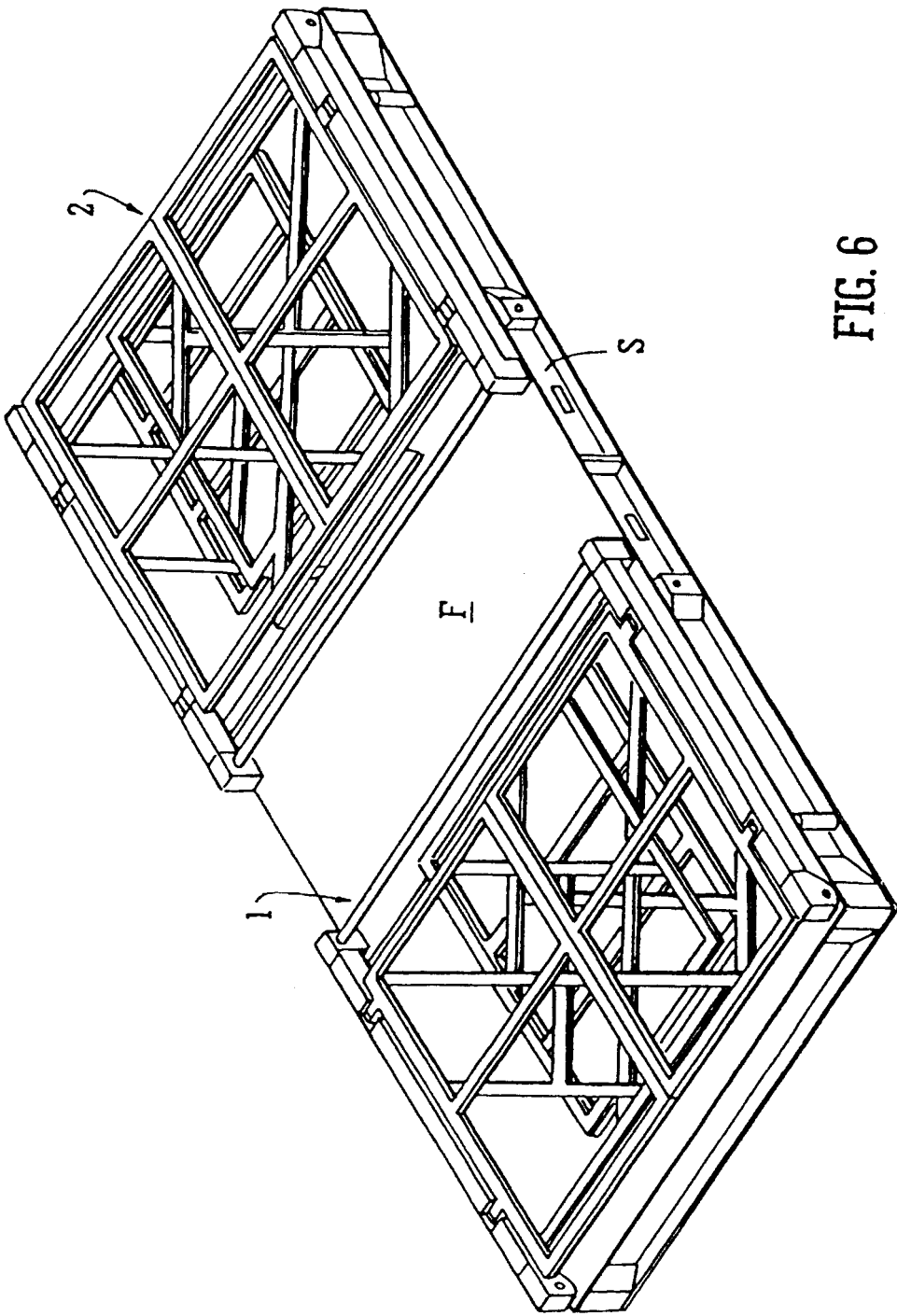


FIG. 6

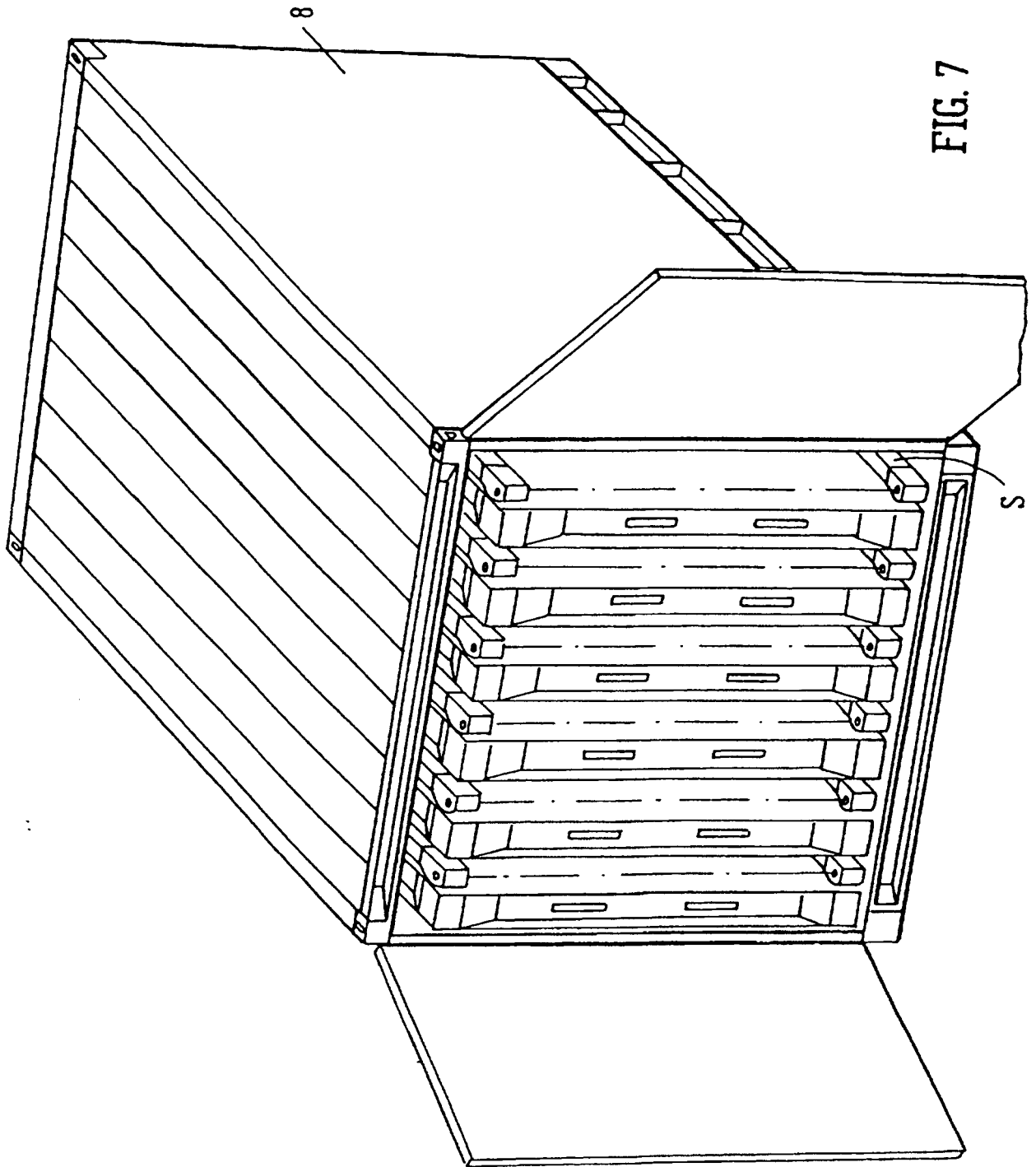


FIG. 7

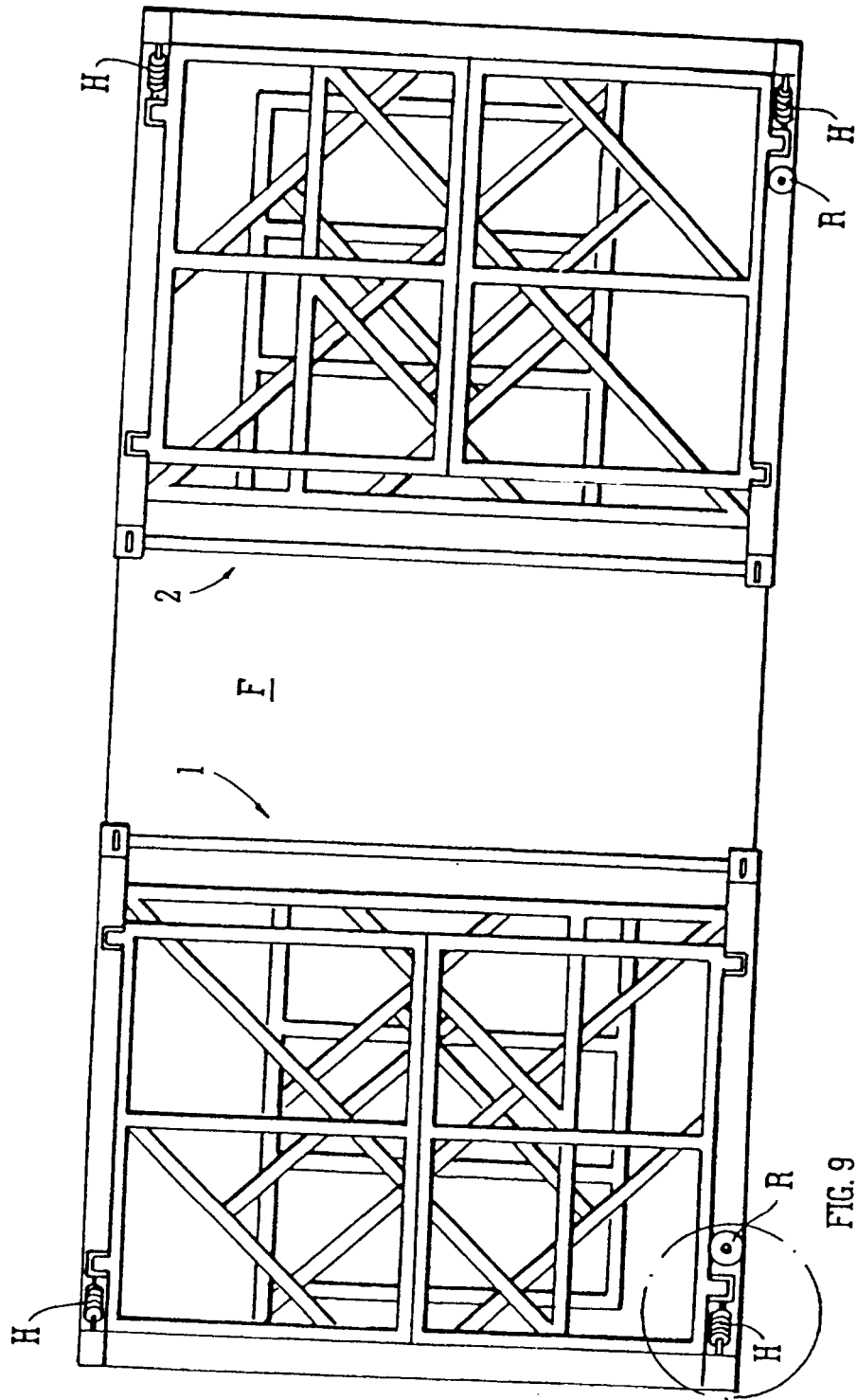


FIG. 8

FIG. 9

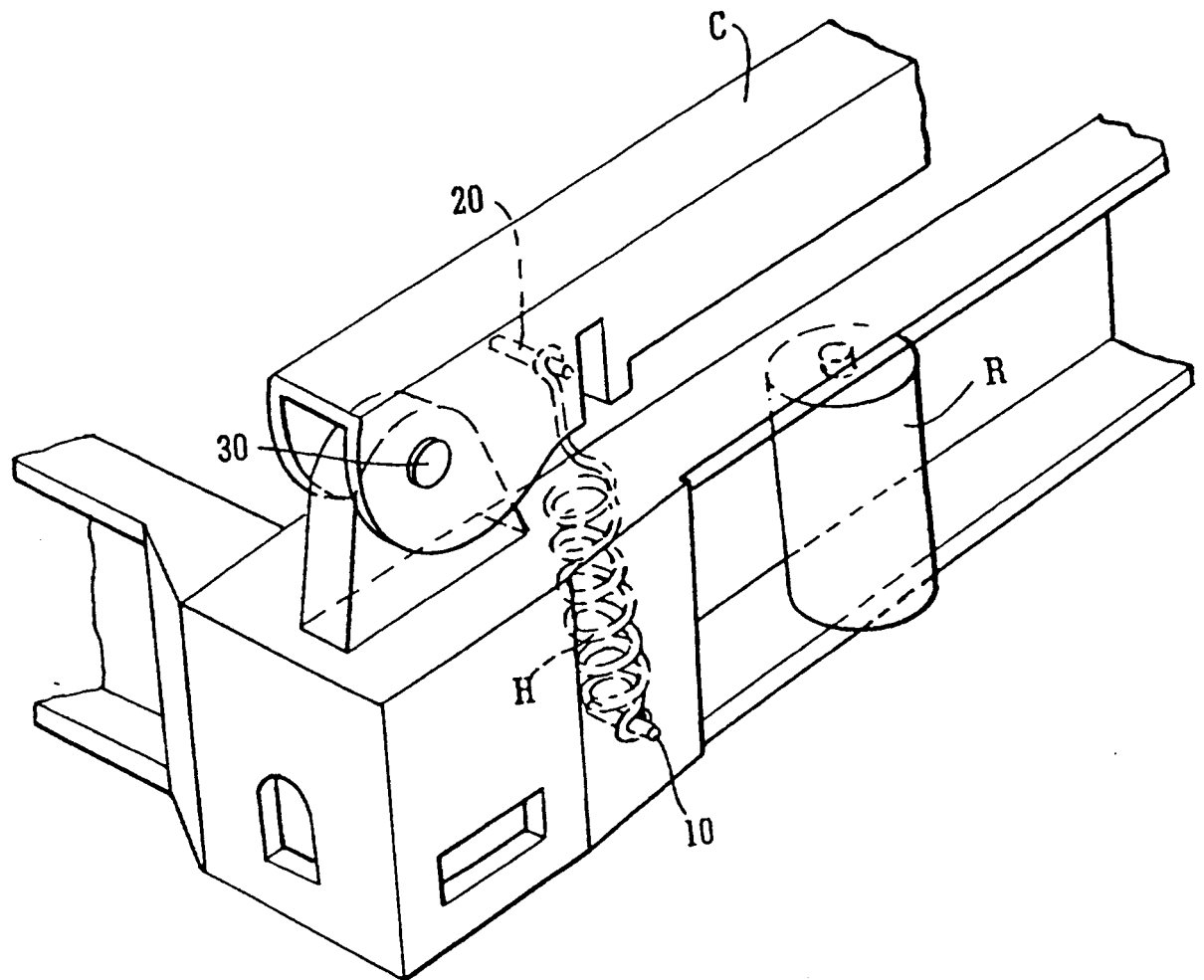
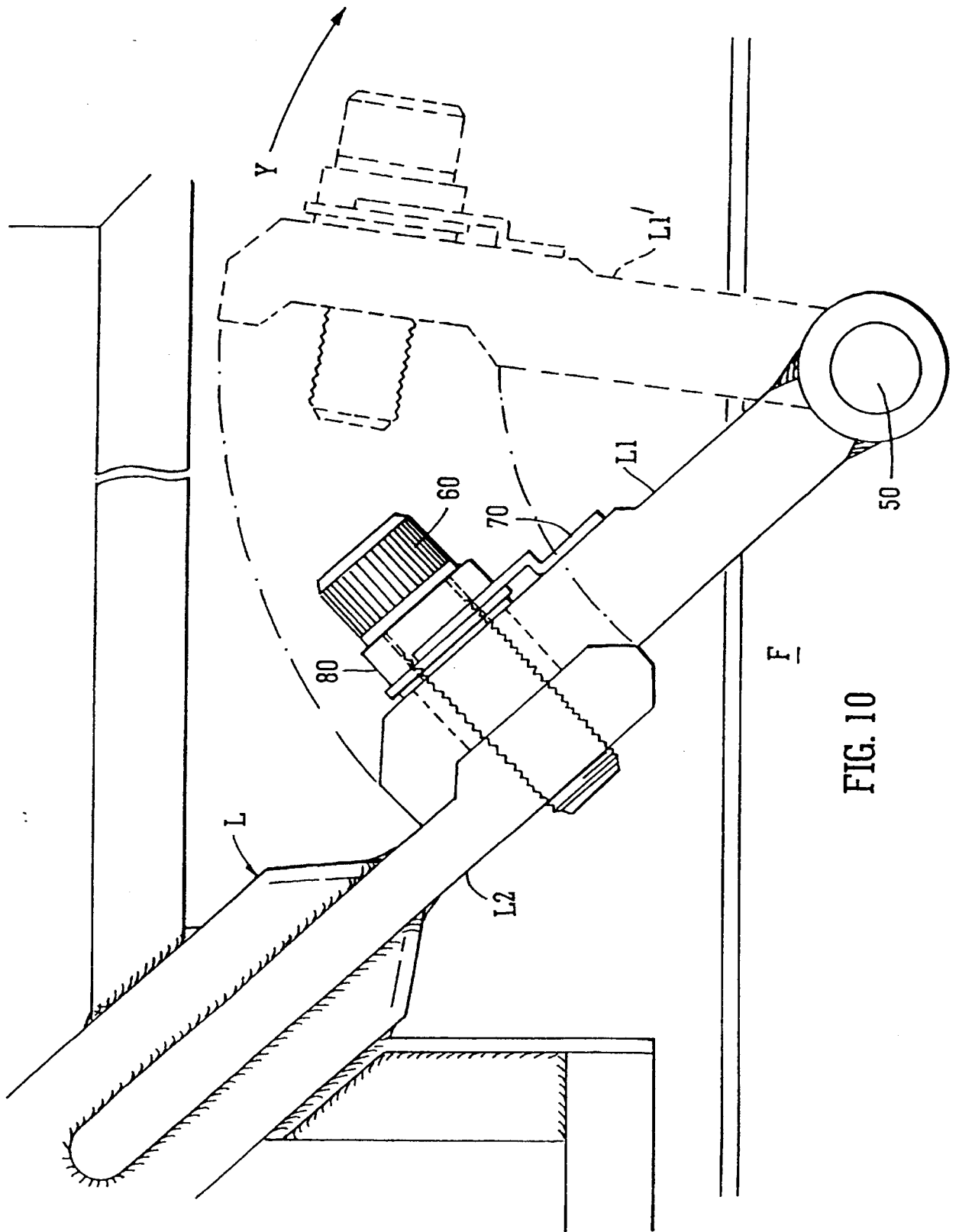


FIG. 9



PLATFORMS FOR TRANSPORTING CARGO

The invention relates to platforms for use in transporting cargo.

In my patent GB 2259495B1 (Agent's ref. P00500GB) there is described and claimed a platform adapted for the transport of goods, the platform including column members, the members being movable between one condition in which they are upright when a load of cargo may be present on the platform and a second condition in which there is no cargo and the columns are horizontal whereby one platform may be stacked on another, the platform including moving means by which it may be moved in or out of a shipping container, the platform being dimensioned to be received as a clearance fit inside the shipping container. Lifting means are present on the column members whereby the platform may be moved using a crane.

That patent also monopolises an ISO shipping container in which a stack of the platforms is present inside the container. In use, the stack is wheeled into the container which is then closed; transported to a destination port; and then opened and the stack is wheeled or rolled out and the platforms are separated for use.

While that system works well, because the platforms are dimensioned to be a clearance fit inside the container there is only a small clearance between the

stacked platforms and the inner walls of the container. As a result, skilled workers are required to consistently load and unload the stock of platforms in the container.

It is one object of this invention to provide an improved system which requires less skilled labour and is less cumbersome to use.

According to the invention in one aspect there is provided an ISO shipping container, containing a plurality of empty cargo transporting platforms, each platform being an elongate body defining two sides and two ends and having movable means by which it may be moved in or out of the container, each platform having column members having lifting means at or towards their free ends, the members being movable between one condition in which they are upright and a second condition in which they overlie the top surface of the platform, the platforms when in the second condition being disposed in the container with one side in contact with the floor of the container.

Because the platforms are positioned side by side instead of being stacked one on top of the other it is possible to leave much more clearance between the inner sidewalls of the container and the platforms, making it easier to manipulate the platforms.

Preferably the platforms measure about 2.46m in width and about 6m long, are received in an ISO container with a clearance of about 13 cm between the upper side of the platforms and the ceiling of the container.

In another aspect the invention provides a platform adapted for the transport of cargo, the platform having moveable means by which it may be moved along a substrate, column members hingedly connected to the platform and having lifting means at or near their free ends, the members being movable between one condition in which they are upright when a load of cargo is present on the platform and a second condition in which they overlie the top surface of the platform, side walls being present to define an outer cover for the cargo, the side walls being foldable to overlie the platform when the columns are in the second condition.

It is a much preferred feature of the invention that the platform be provided with wheels or rollers as the moving means.

Filling the container at a port or factory is feasible because of the simplicity of the operation and the speed with which it may be accomplished which should lead to a reduction in port charges. Since moving a platform with a container by rolling or the like is so quick, it is feasible to fill the container in the ship, so avoiding more lifting charges, e.g. a normal port crane lifts one platform at a time whereas the above platforms could be lifted 12 at a time inside one 40 foot ISO container. Thus time and cost savings are achieved.

Although it is necessary to transport platforms to the site for loading, it is possible to carry a plurality of platforms on one lorry or truck or container. This will save cost as instead of trucking one empty bunk after discharging of cargoes in fact it is now possible to truck a plurality , e.g. 12 in one truck. In cases where it takes a long time for the supplier to fill a container, the capital represented by the platform which is standing idle is reduced compared to that represented by a container or a container chassis one for each container standing idle since the platform is less expensive to manufacture than a container or container chassis.

To facilitate loading the platform preferably includes recesses to receive the fork of a fork-lift truck of standard dimensions.

A column is preferably present at each corner of the platform and lifting hooks are present at the top face of the columns. Preferably the columns are relatively tall so that the height of a platform when the columns are upright is in the proportion of about 6:1 compared to the height when the columns are horizontal.

The top of a loaded platform may be covered by waterproof plastic or tarpaulin which may be folded by itself when the columns are lowered to the second condition. They may be lowered, for example, by a mechanical gear system or by air power using, e.g. a standard 450 w (3/5 hp) air compressor or by a hydraulic system.

The platform preferably includes means for immobilising the platform, e.g. a brake for each wheeler roller.

A platform of the invention is preferably about 6 metres long, since a plurality of such platforms can be received in a 40 foot (about 12.19 metres) long container. The width of the platform and the height of the column is preferably selected so that there is a small clearance or gap between the platform and the facing inner wall of the container. The distance between the adjacent faces of the platforms and the ceiling may be about 13 cm.

The platform can be loaded from three sides, i.e. from one short side and two long sides. This feature is particularly advantageous for long irregular-shaped cargoes, e.g. steel bars, timber, timber machinery etc. This will ease loading and save cost, as normal ISO containers can only be loaded from one short side.

In order that the invention may be well understood it will now be described by way of example only with reference to the accompanying diagrammatic drawings in which:

Figure 1 is a perspective side view of one platform in an erected, partially loaded condition;

Figure 2 is a perspective end view of the platform of Figure 1 in fully loaded condition;

Figures 3 to 5 are perspective views of the platform of Figure 1 in unloaded and partially collapsed conditions;

Figure 6 is a similar view showing the platform in the completely collapsed, i.e. second, condition;

Figure 7 is a perspective view of an ISO container containing a side by side nest of platforms in their second condition;

Figure 8 is a plan view of the platform showing the end walls in the folded flat condition;

Figure 9 is a sketch perspective view showing a detail of figure 8, and

Figure 10 is a side elevation showing a detail of Figure 3.

A platform P comprises a generally rectangular frame made of U section steel or the like, having outer end walls 1, 2 and sidewalls 3, 4. The platform has a floor F and is mounted on wheels (not shown) on axles (not shown) mounted in the side walls. A column C is present at each corner of the floor, the upper ends of the columns having lifting twist locks 5 of known type. Rails 6 bridge each pair of columns along the ends of the platform near to the upper ends of the columns.

Each end wall 1, 2 comprises one 'gates' (1A, 1B) pivotally attached to a column C. In the closed position the gates define the end walls 1, 2.

Each side wall 3, 4 comprises two end sections 3A, 3B, 4A, 4B and an intermediate section 3C, 4C. The end sections are pivotally attached to their respective column C and each middle section 3C, 4C, is pivotally attached to one end section (3A, 4B in the embodiment shown).

Each column C is hinged at its foot C' to the floor F of the platform and can be maintained safely in the upright position by locking means. Such means may be, for example, a diagonal leg L (Figure 3) which, as shown in Figure 10 comprises a lower portion L1 which is hinged (t 50) to floor F and on upper portion L2 which is shown bolted by a bolt 60 and hexagonal nut 80 at a lower region to a complementary mating upper region of portion L1. The bolt 60 is shown screwed into a threaded hole of leg portion L2 and nut 80 is secured in position by a removable yoke 70 fitted around the flats of nut 80 and attached to leg portion L1. On removing yoke 70 the nut can be undone, the bolt can be unscrewed and leg portion swung clockwise as indicated by arrow Y to the release position shown in phantom, enabling the end wall to be folded downwardly against the platform floor F.

As shown in Figure 1, the platform is in the erected condition with section 3B swung to the open position about its column C and section 3C folded back against section 3A. Thus the partially loaded platform, which already contains

loaded palletted cases 7, can be further loaded through the gap provided in wall 3 until it is filled. It will be appreciated that the sidewall and end wall arrangement enables all of the walls or portions only of the walls to be opened for loading from three sides or the end of the platform.

In Figure 2 the platform is fully loaded and the sidewalls 3, 4 are in the closed position with the gates 1A, 1B of endwall 1 shown open.

Figures 3 to 6 show an empty platform being gradually collapsed to its second condition.

In Figure 3, with the gates 1A, 1B closed, sidewall section 3B of wall 3 has been folded inwardly against endwall 2. Sidewall section 4C, which is pivotally attached to section 4B has been folded to lie against section 4B and then section 4B, together with section 4C, has been folded inwardly to lie against section 3B.

At the other end of the platform section 3C has been folded to lie against section 3A and section 4A remains in the unfolded position.

In Figure 4 end section 4A has now been folded inwardly to lie against end wall 1 and sections 3A and 3C have been folded to lie against section 4A.

In Figure 5, end walls 1 and 2 together with their respective portions of folded sidewalls 3, 4 are shown being folded together with unlocked columns C towards floor F of the platform.

Figure 6 shows the platform in the completed folded, i.e. second condition. In this condition the platform may then be stored with a plurality of similarly folded platforms in an ISO container 8 by standing it on one of its two longitudinal sides S with its two ends E vertical. This is shown in Figure 7 where six platforms are shown side by side.

A typical platform measures in mm:

6000 long

2460 wide

2613 high

The platform when loaded may be covered by a tarpaulin, not shown, to form a sealed unit.

A loaded platform may be lifted on to a ship using a chain connected to the twist locks 5 and to say a crane. The platform is unloaded at the destination port.

To return a number of empty platforms P in an economical way the platforms P are each collapsed as described above to the condition shown in Figure 6. The platforms are then turned through 90° so that they rest on one sides. Each platform is then pushed on into the ISO container 8 either individually or two or more at a time depending on the equipment available until a nest of platforms is present as shown in Figure 7. Because of the generous clearance it is easy to manoeuvre the nest of platforms into and out of the container.

Figures 8 and 9 show a hydraulic lifting/lowering arrangement for column C, comprising hydraulic cylinders H, each pivotally connected between hinge mountings 10 (on the edge of the platform floor) and 20 (on column C at a suitable distance from a hinge support 30 on which it is mounted on the platform floor).

Side rollers R are provided at the long edges of the platform floor to facilitate its removal from the container.

CLAIMS

1. An ISO shipping container containing a plurality of empty cargo transporting platforms, each platform being an elongate body having two sides and two ends and having movable means by which it may be moved in or out of the container, each platform having column members having lifting means at or towards their free ends, the members being movable between one condition in which they are upright and a second condition in which they overlie the top surface of the platform, the platforms when in the second condition being disposed in the container with one side in contact with the floor of the container.
2. A container according to Claim 1, wherein the platforms measure about 2.46m in width and about 6m long, and are received in an ISO container with a clearance of about 13 cm between the upper side of the platforms and the ceiling of the container.
3. A platform adapted for the transport of cargo, the platform having moveable means by which it may be moved along a substrate, column members hingedly connected to the platform and having lifting means at or near their free ends, the column members being movable between one condition in which they are upright when a load of cargo is present on the platform and a second condition in which they overlie the top surface of the platform, side walls being present along the longer side of the platform to define an outer cover for the cargo, the side walls being foldable to overlie the platform when the columns are in the second condition.

4. A platform according to Claim 3, wherein the platform is provided with wheels or rollers as the moving means.
5. A platform according to Claim 3 or 4, wherein the side walls comprise three side wall sections, the outer ones of which are hinged to respective columns, the middle section being hinged on one of the outer sections and being separably movable, whereby access may be gained from the side of the platform to the platform top surface.
6. A platform according to Claim 3, 4 or 5, wherein end doors are present at the ends of the platform, and are hinged to the column members.
7. A platform according to any of Claims 3 to 6, wherein the column members are present at the corners of the platform.



Application No: GB 9719897.2
Claims searched: 1-2

Examiner: Matt Jefferson
Date of search: 12 January 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK CI (Ed.P): B8H (HLA, HLC, HLX); B8Q (QX).
Int CI (Ed.6): B65D 19/38, 21/06, 88/52
Other: Online: WPI.

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2259495 (LAM) See whole document.	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.



Application No: GB 9719897.2
Claims searched: 3 to 7

Examiner: Matt Jefferson
Date of search: 21 August 1998

Patents Act 1977
Further Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.P): B8H (HLA); B8P (PC3C, PK6, PK12).

Int CI (Ed.6): B65D 19/12, 88/52.

Other: None.

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
Y	GB 2259495	(LAM) See abstract and figures 5 & 9.	3, 4, 6 & 7.
Y	GB 2101963	(SEADYKE AND ALCAN) See abstract and figures.	3, 4 & 7.
Y	WO 95/20525	(NIMOVERKEN AKTIEBOLAG) See abstract and figures.	3, 4 & 7.
Y	US 4858779	(ZIMMERLUND) See whole document.	3, 4, 6 & 7.
Y	US 4177907	(FUNAIOLI ET AL.) See abstract and figures.	3, 4 & 7.

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